

ESSEX INSTITUT
SEP 28 1907
SALEM, MASS.

VOL. V.

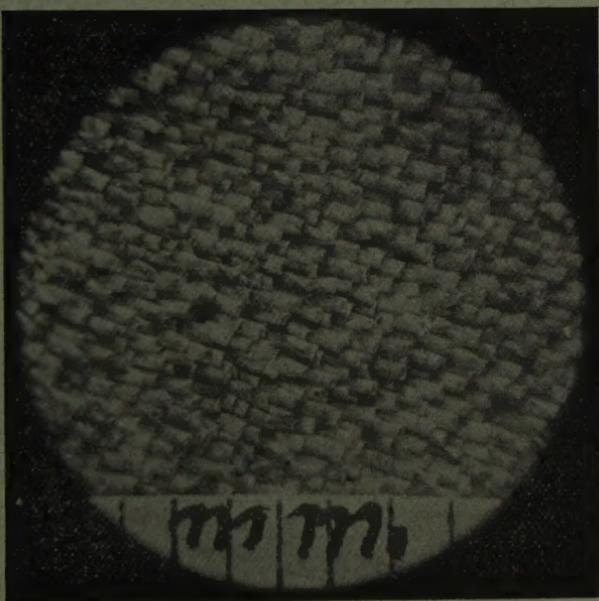
SEPTEMBER, 1907

NO. 81

MYCOLOGICAL BULLETIN

W. A. KELLERMAN, Ph. D.

OHIO STATE UNIVERSITY



ENTERED AS SECOND CLASS MATTER MAY 11, 1906, AT THE POSTOFFICE AT
COLUMBUS, OHIO.

Edited and Published by
W. A. KELLERMAN



Press of VANCE-POLAND CO.
Columbus, Ohio

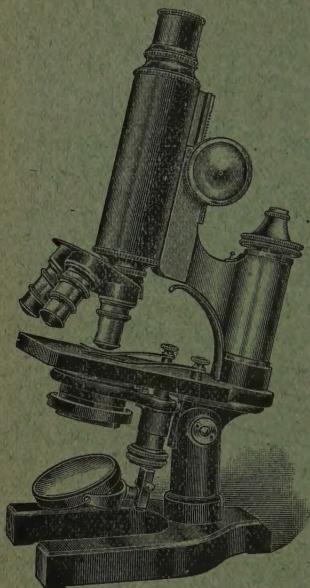
589.22

M99

CARD
CATALOGUED.

NEW SPENCER MICROSCOPE

No. 404



No. 40 Stand
Abbe Condenser
Two Iris Diaphragms
Triple Nosepiece
16 mm. (1-3") Objective
4 mm. (1-6") Objective
2 mm. (1-12") Oil Immersion Objective
Two Eyepieces
Mahogany Cabinet

THE BEST
MICROSCOPE EVER OFFERED FOR

\$75.00 BECAUSE:

- The lenses are unsurpassed
- The Stand is the product of the best of material and workmanship
- The coarse and fine adjustments are the best made
- The fine adjustment is protected by a neat handle provided for carrying the instrument
- The stage is large—67 mm. free distance from the optical axis to the base of the arm is the greatest yet produced
- The stage is completely covered with vulcanite from top to bottom

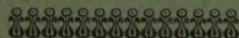
SPENCER LENS COMPANY

BUFFALO, N. Y.

When answering advertisement mention Mycological Bulletin.

You Can Use Engravings

in your business, just the same as other men use them. Time was when engravings were really too expensive for common use, but they are cheap now.



BUCHER
ENGRAVING
COMPANY

COLUMBUS,
OHIO



Portraits, Buildings
Machinery, Live Stock
Advertising Cuts
Stationery Headings
Cover Pages, Etc.

We have a beautiful specimen book which shows the quality of our work, and we send it free on request.

WRITE US ABOUT ANY KIND OF ENGRAVED DESIGN FOR ANY PURPOSE.

We make the engravings for this Publication

Standard Botanical Text Books

| | |
|---|--------|
| ANDREW'S (E. F.) Botany All the Year Round | \$1 00 |
| The same. With Brief Flora of the Eastern United States | 1 50 |
| APGAR'S (A. C.) Trees of the Northern United States | 1 00 |
| APGAR'S (E. A. & A. C.) New Plant Analysis | .55 |
| CHAPMAN'S Flora of the Southern United States Third Edition | 4 00 |
| COULTER'S Manual of the Botany of the Rocky Mountains | 1 62 |
| GRAY'S Lessons in Botany | .94 |
| Outlines of Botany (Leavitt) | 1 00 |
| The same. With Field, Forest and Garden Flora | 1 80 |
| The same. With Manual of Botany | 2 25 |
| Field, Forest and Garden Botany, Flo ra only | 1 44 |
| School and Field Book of Botany. Lessons and Flora | 1 80 |
| Manual of Botany. Flora only | 1 62 |
| The same. Tourist's Edition | 2 00 |
| Lessons and Manual. One volume | 2 16 |
| GRAY'S New Botanical Text-Book: | |
| Vol. I., Structural Botany (Gray) | 2 00 |
| Vol. II., Physiological Botany (Goodale) | 2 00 |
| GRAY & COULTER'S Text-Book of Western Botany | 2 16 |
| LEAVITT'S Outlines of Botany | 1 00 |
| The same. With Gray's Field, Forest and Garden Flora | 1 80 |
| The same. With Gray's Manual of Botany | 2 25 |
| WOON'S (Alphonso) Object Lessons in Botany | 1 00 |
| Lessons in Botany | .90 |
| New American Botanist and Florist—Lessons and Flora (Willis) .. | 1 75 |

AMERICAN BOOK COMPANY, Cincinnati

When answering advertisement mention Mycological Bulletin.

FOR SALE

Half-tone Portraits of the following eminent Mycologists:

Peck, Ellis, Arthur, Burrill, Farlow, Tracy, Earle, At-

kinson, Holway, Thaxter, Clinton, Magnus, Oudemans,

Patouillard, Hennings, Rehm, Cooke, Saccardo, Dietel,

Mycological Bulletin, Vol. I, 1903..... 50 cts.

" " " II, 1904..... 50 cts.

" " " III, 1905..... 50 cts.

" " Current volume..... 25 cts.

Mycological Glossary 25 cts

Journal of Mycology, Vol 8—1902..... \$2 00

" " " 9—1903..... 2 00

" " " 10—1904..... 2 00

" " " 11—1905..... 2 00

" " " Current Vol..... 2 00

W. A. Kellerman, Columbus, Ohio

Mycological Bulletin

No. 81

W. A. Kellerman, Ph. D., Ohio State University.

Columbus, Ohio, September, 1907.

Last year a paper was published in the Memoirs of the Torrey Botanical Club, New York, by H. J. Bunker, a student of the Hydnoms. The treatment amateurs at least would regard as revolutionary, and this suggests that a number of the Bulletin be devoted to the subject as there presented. No illustrations were included in the paper. The substance is given below.

NOTES FROM MUSHROOM LITERATURE. VII.

W. A. KELLERMAN.

The paper that will be discussed here is entitled: A Contribution to a Revision of the North American Hydnaceae, by Howard James Bunker. It was published as No. 2, Vol. 12, of the Memoirs of the Torrey Botanical Club.

Professor Bunker is the first American botanist to take a hand in the splitting up of the old genus *Hydnnum*. Several European mycologists have undertaken the task, some of their work being accepted in the paper under discussion.

After this carving out of the Linnaean genus *Hydnnum* the numerous genera, which Professor Bunker recognizes, there remain only six of the American species, namely *Hydnnum albo-magnum*, *Hydnnum album*, *Hydnnum repandum*, *Hydnnum caespitosum*, *Hydnnum washingtonianum* and *Hydnnum sublamellosum*.

A "Hydnnum" then to be a *true Hydnnum*, must be *terrestrial, mesopodous* [*i. e.*, with a stipe or stem attached at the *middle* of the pileus], and *fleshy*; the plants are white, red or yellow; and the spores are *smooth*, not *roughened*.

A list is here compiled to show the new names proposed for the North American species:

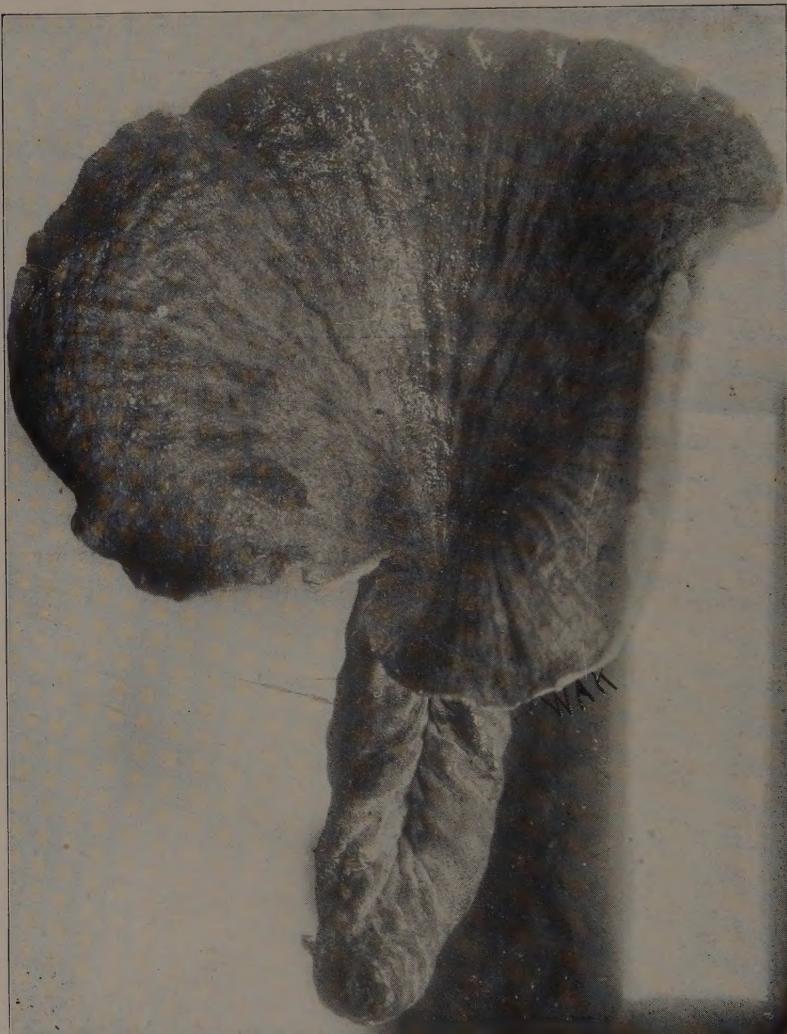


Fig. 262. *Fistulina hepatica*. Beefsteak fungus. Edible. This is a soft fleshy, red species belonging to the family *Polyporaceae*; but the tubes are separate and free—see Fig. 264 of the tubes magnified. It grows in decaying parts as crevices of trees and stumps, from midsummer to early autumn. It is a widely distributed species; rarely common in any region and not often abundant. Photographs were made from specimens collected at Sugar Grove, Ohio.

NEW NAMES FOR OLD HYDNUMS

as given in Professor Banker's Monograph

Hydnnum abietinum—now given as *Hericium laciniatum*.
Hydnnum adustum—now given as *Steccherinum adustum*.
Hydnnum agaricoides—now given as *Steccherinum agaricoides*.
Hydnnum albonigrum—now given as *Phellodon alboniger*.
Hydnnum atroviride—now given as *Sarcodon atroviridis*.
Hydnnum aurantiacum—now given as *Hydnellum floriforme*.
Hydnnum blackfordae—now given as *Sarcodon blackfordae*.
Hydnnum boreale—now given as *Hydnellum suaveolens*.
Hydnnum brunneo-leucum—now given as *Grandiniodes flavum*.
Hydnnum caput-ursi—now given as *Hericium caput-ursi*.
Hydnnum carbunculus—now given as *Hydnellum carbunculus*.
Hydnnum cervinum—now given as *Sarcodon imbricatus*.
Hydnnum compactum—now given as *Hydnellum floriforme*.
Hydnnum conchiforme—now given as *Steccherinum ochraceum*.
Hydnnum concrescens—now given as *Hydnellum concrescens*.
Hydnnum conigenum—now given as *Hydnellum conigenum*.
Hydnnum coralloides—now given as *Hericium coralloides*.
Hydnnum coriaceo-membranaceum—now given as *Phellodon coriaceo-mem-
branaceus*.
Hydnnum crispum—now given as *Hericium coralloides*.
Hydnnum cristatum—now given as *Sarcodon cristatus*.
Hydnnum croceum—now given as *Hericium croceum*.
Hydnnum cyathiforme—now given as *Phellodon tomentosus*.
Hydnnum cyaneotinctum—now given as *Hydnellum cyaneotinctum*.
Hydnnum daviesii—now given as *Steccherinum ochraceum*.
Hydnnum delicatulum—now given as *Phellodon delicatus*.
Hydnnum discolor—now given as *Steccherinum agaricoides*.
Hydnnum erinaceus—now given as *Hericium erinaceus*.
Hydnnum fasciatum—now given as *Phellodon fasciatum*.
Hydnnum fasciculare—now given as *Hericium fasciculare*.
Hydnnum fennicum—now given as *Sarcodon fennicum*.
Hydnnum ferrugineum—now given as *Hydnellum sanguinarium*.
Hydnnum flabelliforme—now given as *Steccherinum rhois*.
Hydnnum flavum—now given as *Grandiniodes flavum*.
Hydnnum floriforme—now given as *Hydnellum floriforme*.
Hydnnum fuligineo-violaceum—now given as *Sarcodon fuligineo-violaceus*.
Hydnnum glabrescens—now given as *Steccherinum reniforme*.
Hydnnum graveolens—now given as *Phellodon graveolens*.
Hydnnum humidum—now given as *Hydnellum humidum*.
Hydnnum hybridum—now given as *Hydnellum floriforme*.
Hydnnum imbricatum—now given as *Sarcodon imbricatus*.
Hydnnum laciniatum—now given as *Hericium laciniatum*.
Hydnnum laevigatum—now given as *Sarcodon laevigatus*.
Hydnnum nigrum—now given as *Phellodon niger*.

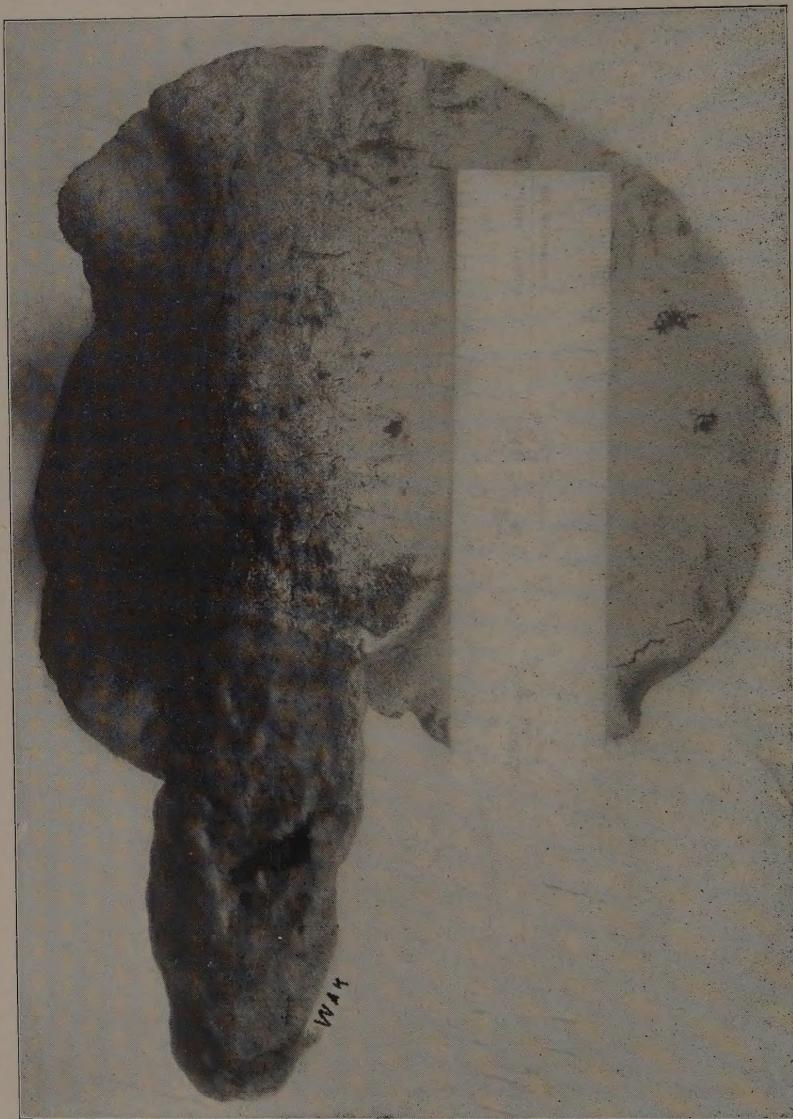


Fig. 263. FIS-TU-LI'-NA HE-PAT'-I-CA. The Beefsteak fungus. The same plant shown in Fig. 262, there the upper, here the lower side. Unfortunately the tubes forming the fruiting surface cannot be seen, but Fig. 264 shows them plainly.

Hydnnum ochraceum—now given as *Steccherinum ochraceum*.
Hydnnum parasiticum—now given as *Steccherinum strigosum*.
Hydnnum plumarium—now given as *Steccherinum ochraceum*.
Hydnnum plumarium—now given as *Steccherinum plumarium*.
Hydnnum pulcherrimum—now given as *Steccherinum pulcherrimum*.
Hydnnum putidum—now given as *Phellodon putidus*.
Hydnnum ramosum—now given as *Hericium laciniatum*.
Hydnnum reiniforme—now given as *Steccherinum reiniforme*.
Hydnnum reniforme—now given as *Steccherinum reiniforme*.
Hydnnum rhois—now given as *Steccherinum rhois*.
Hydnnum scabripes—now given as *Sarcodon scabripes*.
Hydnium schiedermayeri—now given as *Hericium croceum*.
Hydnnum scrobiculatum—now given as *Hydnellum scrobiculatum*.
Hydnnum septentrionale—now given as *Steccherinum septentrionale*.
Hydnnum spongiosipes—now given as *Hydnellum velutinum*.
Hydnnum stratosum—now given as *Leia stratos*.
Hydnnum strigosum—now given as *Steccherinum strigosum*.
Hydnnum suaveolens—now given as *Hydnellum suaveolens*.
Hydnnum tinctorium—now given as *Echinodontium tinctorium*.
Hydnnum tomentosum—now given as *Phellodon tomentosus*.
Hydnnum vellereum—now given as *Phellodon vellereus*.
Hydnnum velutinum—now given as *Hydnellum velutinum*.
Hydnnum zonatum—now given as *Hydnellum zonatum*.

The purpose and nature of the monograph, the general remarks, and the distribution of the Hydnaceae will be given in Professor Banker's own words, which are as follows:

"The following paper is intended to include a revision of all the pileate forms of the family of the Hydnaceae, which have been found on the continent of North America and its adjacent islands north of the Isthmus of Panama. A few resupinate forms have been included by reason of their close relationship to pileate forms, but in general they have been excluded. The reason for this arbitrary limitation of the scope of the work is the impossibility of adequately treating the resupinate forms and referring them to their proper species until such time as the Berkeley types can be thoroughly examined by one familiar with our American plants.

"The Hydnaceae represent one of the smaller families of the Basidiomycetes, there being not more than five hundred known species in the family, and of these not more than two hundred have been reported within the geographical limits of this paper. With a few exceptions the species are not common and generally appear to be quite local in distribution. The task, therefore, of getting suitable material on which to base a revision of the family has proved more difficult than was at first anticipated. Nor are the herbaria of collectors as helpful as one would have a right to expect. The published descriptions of species of this family are frequently incomplete and inadequate to fully discriminate the species, so that it is possible often to include several different species under the one description. Collectors are inclined to refer specimens according to some conspicuous feature, such as a scaly pileus or a zonate pileus, and then pay little attention to other apparently minor characters. Owing to the local character of the distribution of these plants, combined with the comparative rarity with which they are found, few discover that the plants

which they are referring to a given species are very different from the plants which others are referring to the same species. Moreover, assuming that the species is common and well known, no field notes are considered necessary. As a result much confusion has arisen in our conception of these species. Occasionally mycologists, who have received specimens from all parts of the country, have noted that certain species present remarkable variations, but as the material thus received is usually fragmentary, without suitable notes, and is received only at rare intervals, they have generally contented themselves with noting that the form is an unusual one.

"In the extensive collections of the New York Botanical Garden, brought together from very many different sources, the confusion in species is very evident. This is conspicuously seen in the forms referred to *Hydnium imbricatum* L. and *H. zonatum* Batsch. As to the former species, nearly everything with a scaly pileus has been referred to it, while the latter has been made to include almost everything with a zonate pileus.

"While herbarium specimens often clearly show that they represent distinct species, so great is the change that these plants undergo in the process of drying that one rarely feels justified in attempting a description of new species from such material without satisfactory field notes. On the other hand, the securing of fresh material or at least of ample and accurate field notes is a difficult and discouraging task. During six years of careful watching for specimens of the *H. imbricatum* allies, it has been the writer's fortune to find but two of the scaly-capped forms in the field; likewise but one of the forms commonly referred to *H. zonatum*, has come within his observation. Of more than forty specimens found in the her-

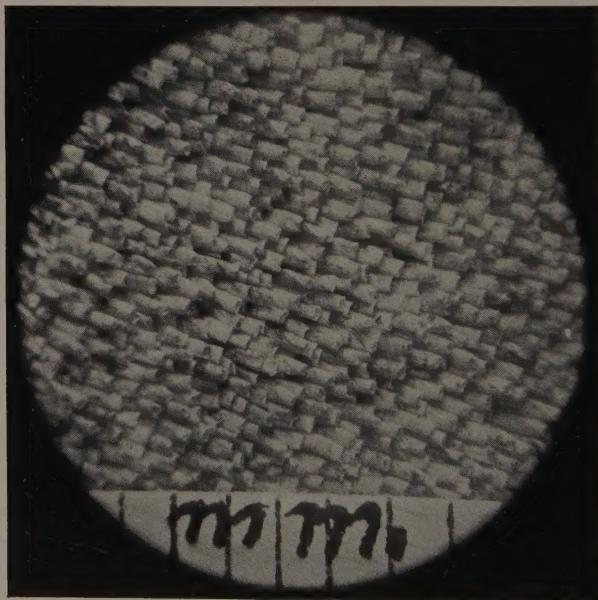


Fig. 264. The tubes forming the fruiting surface of *Fis-tu-li'-na he-pat'-i-ca*, considerably magnified as shown by the millimeter scale. See Figs. 262 and 263.

baria referred to these two species, not one was accompanied by descriptive notes that were of any value. Yet we have at least a half dozen good species here represented, could the distinctive characters be clearly established.

"The species of this family are not only comparatively rare and local in distribution, but they are often intermittent in appearance. The writer once found three different species in a space not over ten feet square, and a fourth in the same woods a short distance away. But not one of the four was found anywhere in that region in the next four successive years, although the ground was searched over repeatedly each year.

DISTRIBUTION.

"The geographical distribution of these plants appears to be largely influenced by latitude. But collections of Basidiomycetous fungi from the region west of the Mississippi river have been so few and incomplete that general conclusions respecting distribution in this region can not be confidently drawn. The following areas may be recognized as possessing each a characteristic and somewhat distinctive hydnaceous flora. (1) The northeastern United States south to North Carolina and Tennessee and west to the Great Plains. (2) The Southern States west to Louisiana. (3) The Gulf region including the West Indies and the immediate borders of the Gulf. (4) The north Pacific coast including Oregon and Washington. It seems probable that Canada and northern New England to Greenland may represent another distinct floral distribution, but collections in this region have been too meager to suggest more than a possibility. These remarks on distribution are based on specimens actually seen by the writer, and do not include the various species reported in catalogues and local floras without accompanying specimens. The material examined has come chiefly from the following states: Maine, Massachusetts, Connecticut, New York, New Jersey, West Virginia, Ohio, Indiana, Kentucky, Alabama, Louisiana, Cuba, Honduras, Oregon, Washington. This study of distribution cannot be satisfactorily supplemented by published local floras, for in consequence of the confused conception of species in this family, such lists are wholly unreliable except when verified by actual specimens, and these are often lacking. A comparison of two collections on which such floras have been based, quickly reveals how utterly untrustworthy are these lists of species as a means of determining distribution. The plants referred to *Hydnum imbricatum* by Alabama collectors are totally distinct from the plant referred to the same species by the New England botanists. Professor Earle has noted that *Hydnum repandum* as collected by him in Connecticut, was a very different thing from the plant of that alliance with which he had been acquainted in Alabama.

"It is hoped that the present contribution may lead to a clearer conception respecting the species of this family and be a means of stimulating a more exact study of the distribution of these plants. It can hardly be expected that all confusion has been removed or that all errors have been avoided. The source of many of our present difficulties is to be traced back to the work of early European botanists, whose material is either inaccessible or has long since passed into an irrecoverable oblivion. The author believes that in the majority of cases, with respect to the species included in this paper, he has formed a clear conception of them in his own mind and has endeavored to present that conception as definitely and distinctly as he was able in the accompanying descriptions and synopses. Whether he has in all cases made an absolutely correct determination, especially in the case of species referred to old European types, he cannot state with complete confidence."

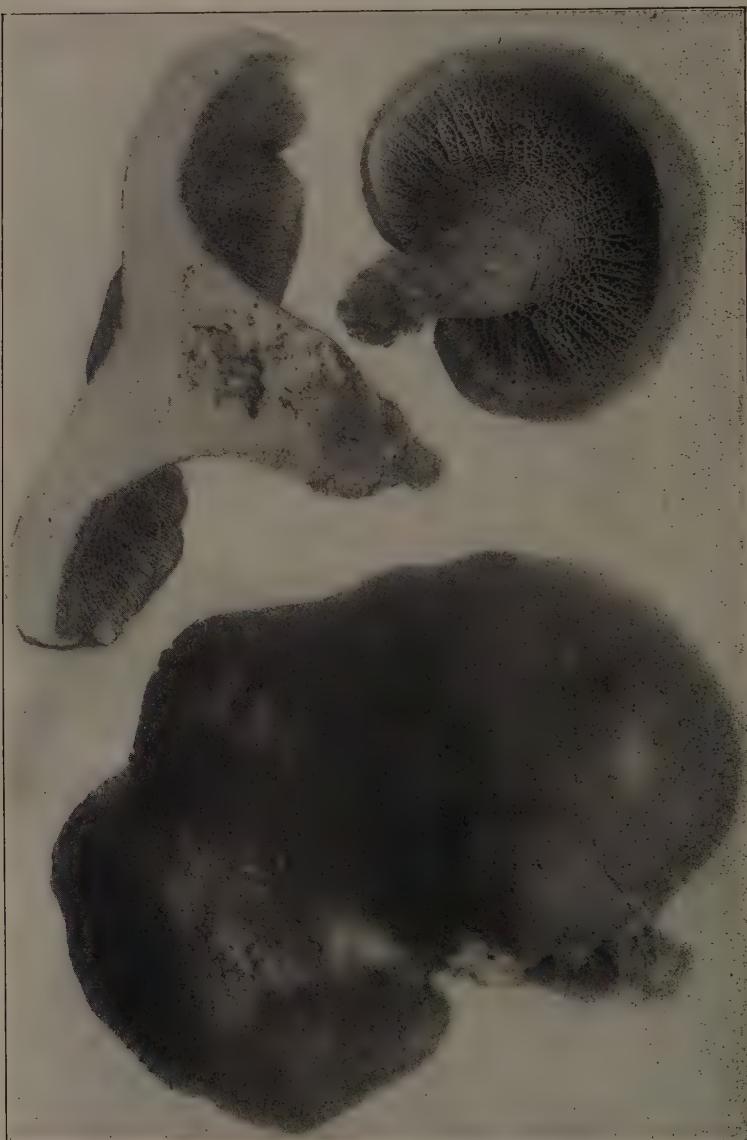


Fig. 265. BO-LE-TI'-NUS PO-RO'-SUS. A fleshy reddish-brown plant, belonging with the preceding species illustrated in this Number to the family *Polyporaceae*. The hymenium or fruiting layer is described as composed of broader radiating lamellæ connected by very numerous more narrow anastomosing branches or partitions and forming large angular pores. Collected in the woods at Sugar Grove, Ohio.

The Mycological Bulletin is issued Monthly, Price 25c. Copies of Vol. II (1904), Vol. III (1905) and Vol. IV (1906) may be had for 50 cents each, or cloth bound copies for 75 cents. No copies remain of Vol. I (1902). Address W. A. Kellerman, Columbus, Ohio.

This space is owned by
THE TERRY ENGRAVING CO.
COLUMBUS, OHIO

When answering advertisement mention Mycological Bulletin.

2nd Edition

of the book which is "without doubt the most important and valuable work of its kind."—*Plant World*.

MUSHROOMS

BY PROF. GEORGE ERANCIS ATKINSON
OF CORNELL UNIVERSITY

Edible, Poisonous Mushrooms, Etc. With recipes for cooking by Mrs. S. T. Rorer, and the chemistry and toxicology of Mushrooms, by J. F. Clark. With 230 illustrations from photographs, including fifteen colored plates by F. R. Rathbun, 320 p. 8vo, \$3.00 net (by mail \$3.23.)

Among the additions in this second edition of Prof. Atkinson's remarkable book are ten new plates, chapters on "The Uses of Mushrooms" and on "The Cultivation of Mushrooms" illustrated by several flashlight photographs.

THE NATION said of the first edition, "If Prof. Atkinson would fill in the gaps, and 20 or 30 plates and issue a second edition . . . he would win the gratitude of every amateur and professional mycologist in the country. (This second edition is the one now issued.)

Prospectus of New American Nature Series Free on Application

HENRY HOLT & COMPANY 29 W. 23rd St., NEW YORK

When answering advertisement mention Mycological Bulletin.

LAMBERT'S PURE CULTURE

Mushroom

Spawn



Produced by the new grafting process from selected and prolific specimens, thoroughly acclimatized, has *never failed to run.*

This spawn is made from cultures taken by the *selective* method, recently discovered, from choice specimens of the best varieties of mushrooms known to be thoroughly acclimatized, and selected with special reference to their size, flavor, vigor and prolificness. The elements of uncertainty surrounding the old *chance* method of producing wild spawn (English and French), is therefore eliminated, and a uniform crop of the best marketable variety is thus assured

to the exclusion of all other and inferior fungi.

The importance of this discovery will be realized from the mere statement that, for the first time in the history of mushroom culture, can spawn be offered of a specific variety of mushrooms.

Of the varieties already developed, we are offering pure culture spawn of the *Agaricus Campestris* (white, cream or brown), *A. Arvensis* (cream), and *A. Villaticus* (cream).

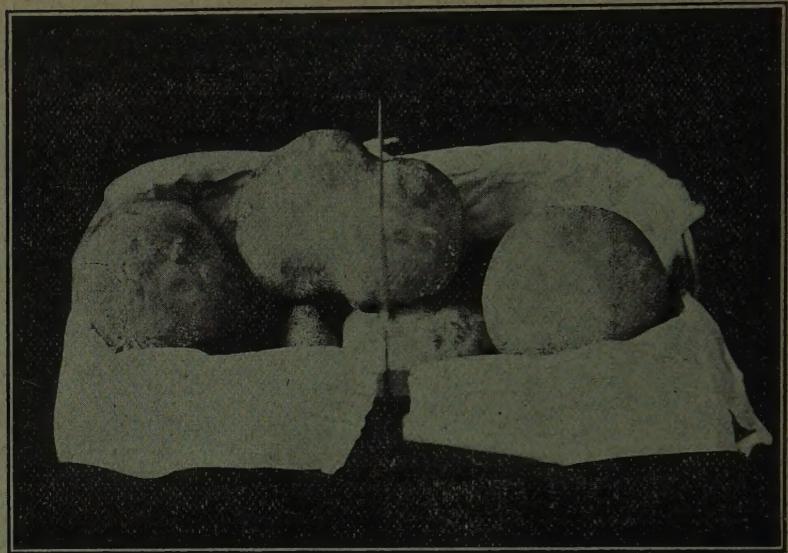
FOR SALE BY ALL LEADING SEEDSMEN.

Practical Instructions on "MUSHROOM CULTURE"
mailed free on application.

American Spawn Company,

ST. PAUL, MINN.

When answering advertisement mention Mycological Bulletin.



Nine Mushrooms, Weight Four Pounds
Grown from Pure Culture Spawn

Make Money in Your Cellar

Mushroom Culture gives greater returns per dollar invested than any other line of horticulture. A very small outlay will start a bed, and the PURE CULTURE METHOD has eliminated risk and possibility of failure as nearly as can be possible. MUSHROOMS ARE A WINTER MONEY MAKER—you need neither greenhouse nor cold frame, just a little space in the cellar will provide you a nice income if you use

PURE CULTURE SPAWN

Success is assured for every brick is inoculated direct from test tube culture. You can breed to definite variety just as in apples, etc. You can get definite varieties for definite climates, either warm or cold. This is not true of any other spawn. Get Pure Culture Spawn.

Write for our free book, No. 4, it tells all about mushroom growing.

PURE CULTURE SPAWN CO.

Pacific, Mo. and Cincinnati, O.

Address all correspondence to PACIFIC